Permitting Telecommunication Cables in Southeast Florida

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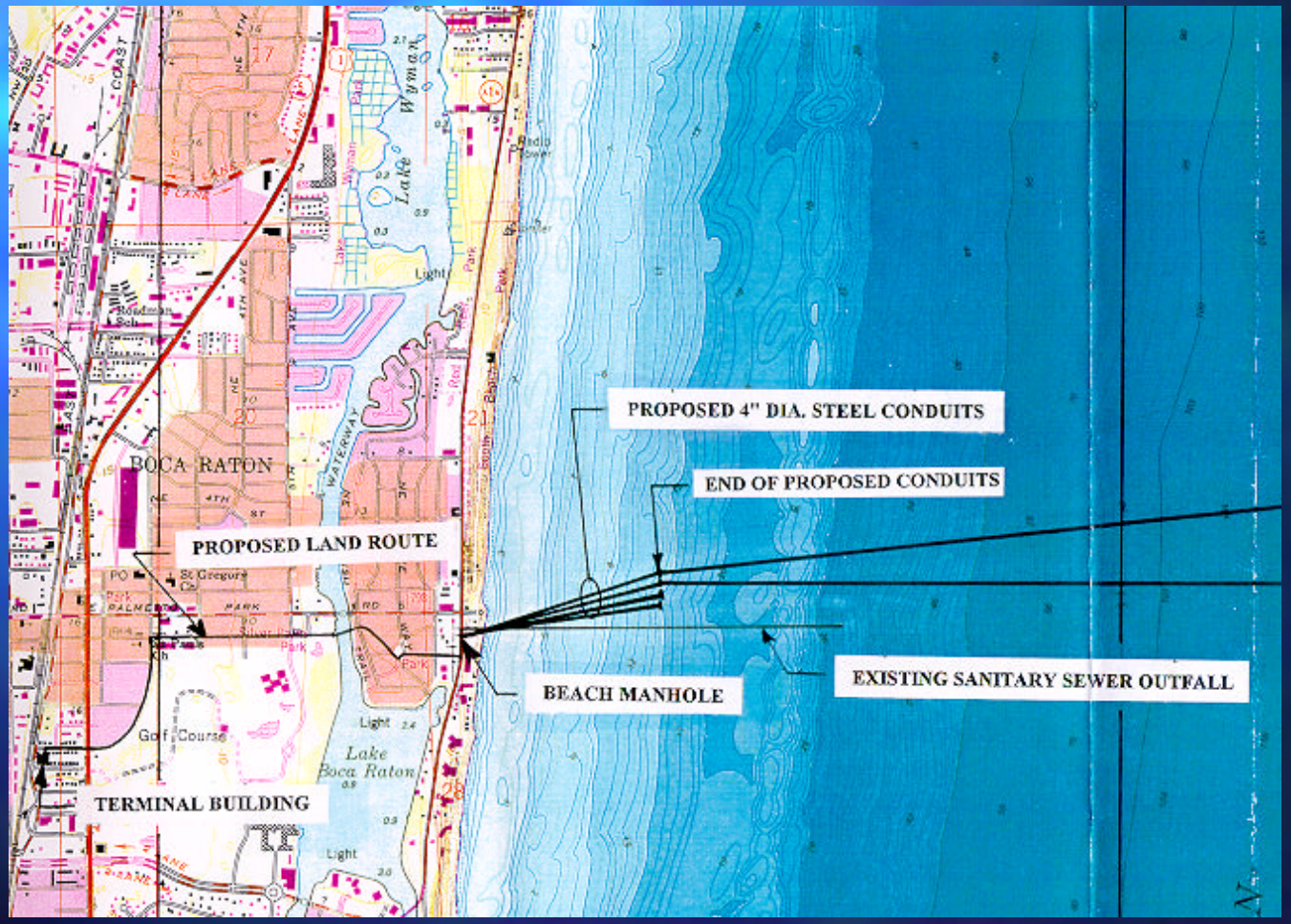
Brief permitting history:

- FOC's 1982 through 1994; early co-axial cables and Navy cables
- Exemption or Environmental Resource Permit? **40E-4.051(5)(a) The installation of subaqueous transmission and distribution lines laid on, or embedded in, the bottoms of wetlands or other surface waters, except in Class I and Class II waters and aquatic preserves, provided that no dredging or filling is necessary.**
- First ERP Permit in 1998- ATT Hollywood: 9 conduits with 5 cables to date.

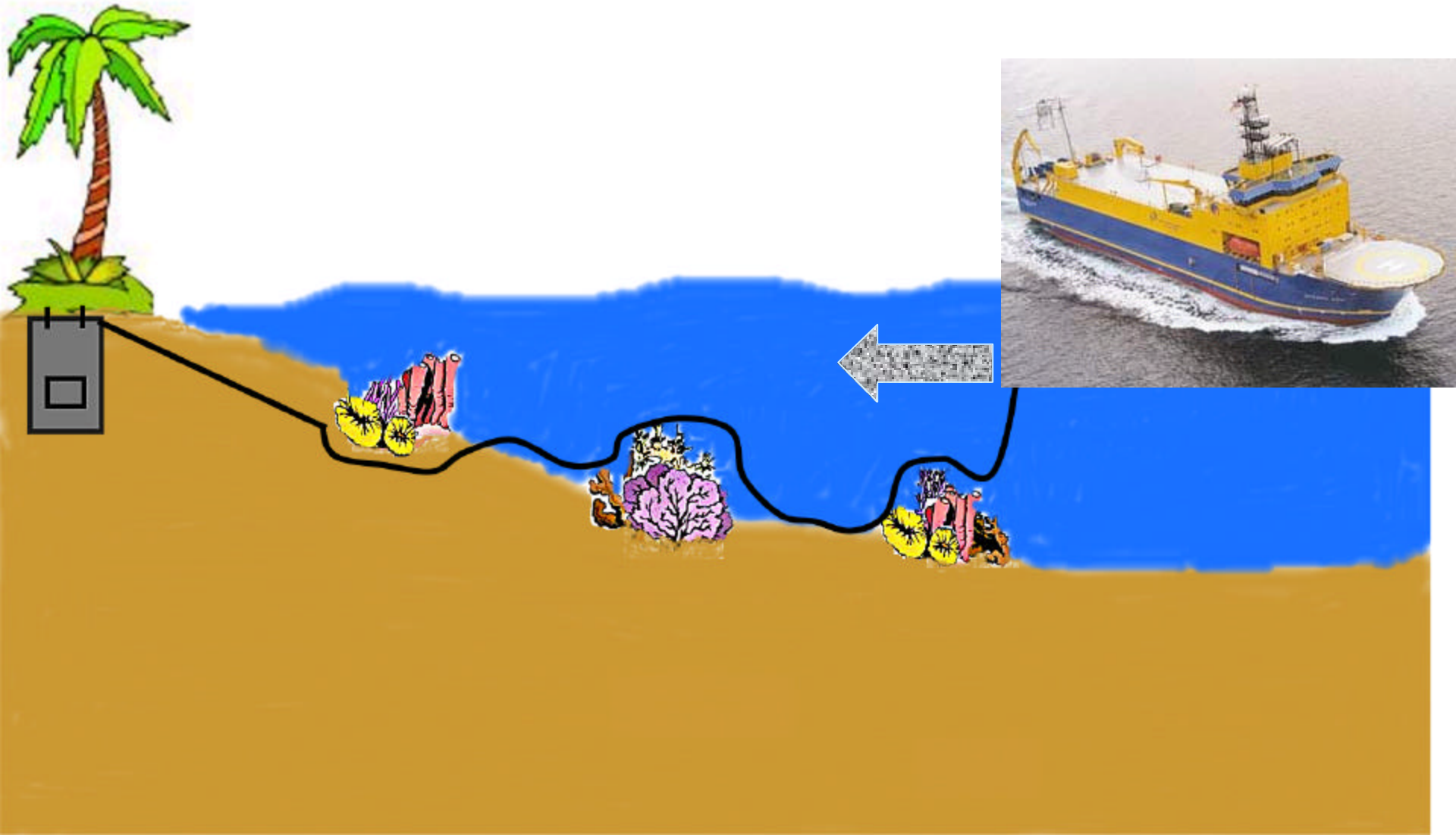
Industry Growth

- Since 1998 the Department has permitted 22 conduits/12 cables for five projects.
  - **AT&T, Tycom, Emergia, New World Network, Caribbean Crossings**
- Current in-house applications propose 2 conduits/ 2 cables but capacity for more
  - **Caribbean Crossings, Florida Teleport**

Landing Site



Network Access Point (NAP)



Installation- Drill Site

Installation- Drill Site

Installation- “punch out”






Potential Environmental Impacts

- Water Quality Concerns
  - spoil (drill mud and sand) containment and disposal
  - dewatering
  - turbidity plumes at punch out points
  - turbidity caused during trenching installations
  - frac-outs
- Reef/Hardbottom and other fauna
  - coral and sponges are abraded or dislodged during installation
  - turbidity plumes and frac-outs can smother corals and other filter feeders
  - marine mammal entanglements
  - oscillations during storm events (strumming)
  - cable repairs

Frac-outs: release of drilling lubricants.

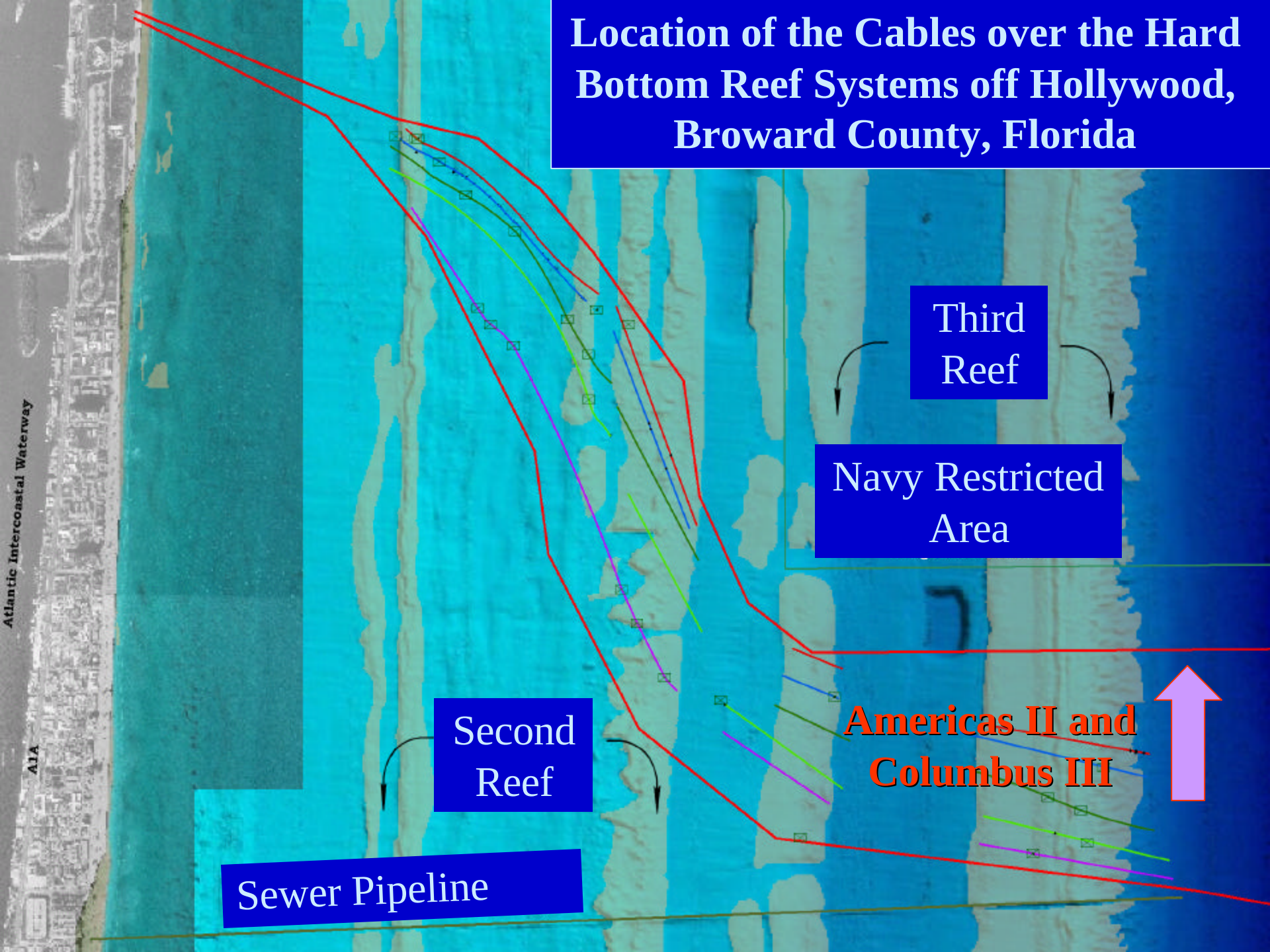
- Forms may be mounding, burps, or uncontrolled flows
- Controls may include, increasing viscosity of bentonite or the addition of additives.

Reported Frac-outs

- **AT&T Hollywood-**none reported by consultant
- **Tyco- 4,331** square feet
- **Atlantica- 1,251** square feet
- **Com-Tech-** none reported by consultant

Frac-out Monitoring and Clean-up

- New specific conditions include:
  - incorporation of fluorescent dyes
  - incorporation of side scan sonar
  - divers in water during drill process
  - conduit corridor inspection after each drill rather than at the end of project

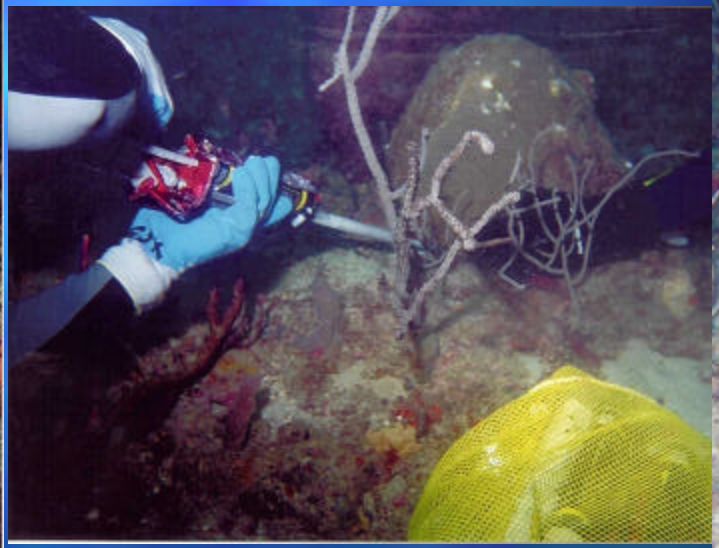

Location of the Cables over the Hard Bottom Reef Systems off Hollywood, Broward County, Florida
Third Reef
Navy Restricted Area
Second Reef
Americas II and Columbus III
Sewer Pipeline
Atlantic Intercoastal Waterway
A1A

Cable Lay Impacts

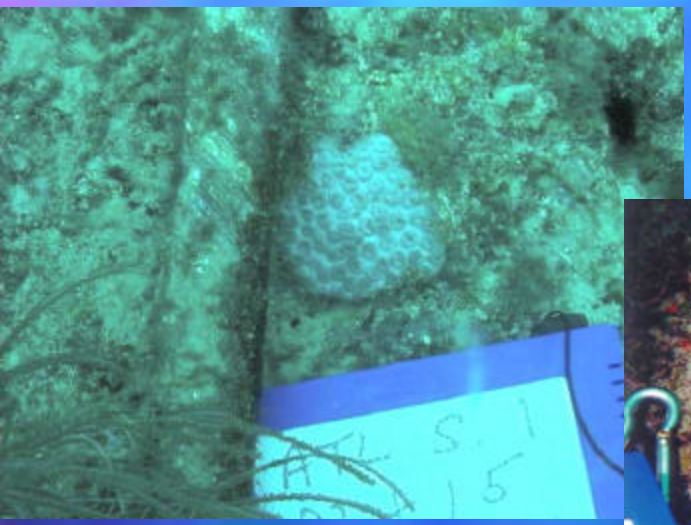
Some Reported Impacts during cable lay (Stony Corals only)

- AT&T Hollywood- 2 cables/ 26.9 ft.^{2}
- Atlantica-2 cables/ 19.3 ft.^{2}
- Tyco-2 cables/ 2.18 ft.^{2}
- Com-Tech-2 cables/ 4.06 ft.^{2}

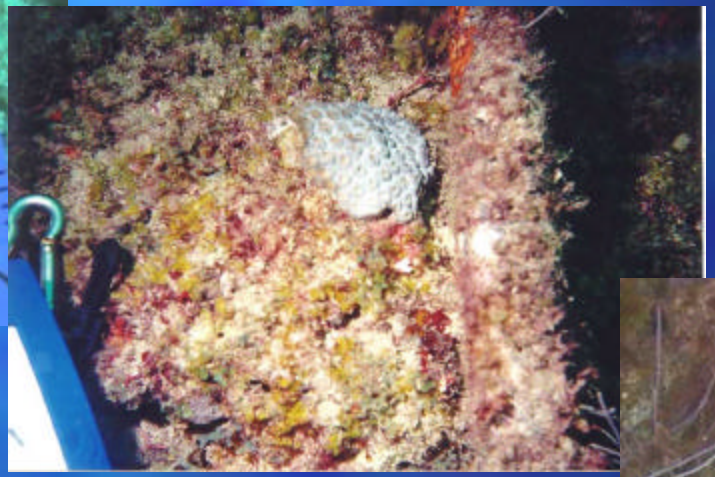
Remediation Plans



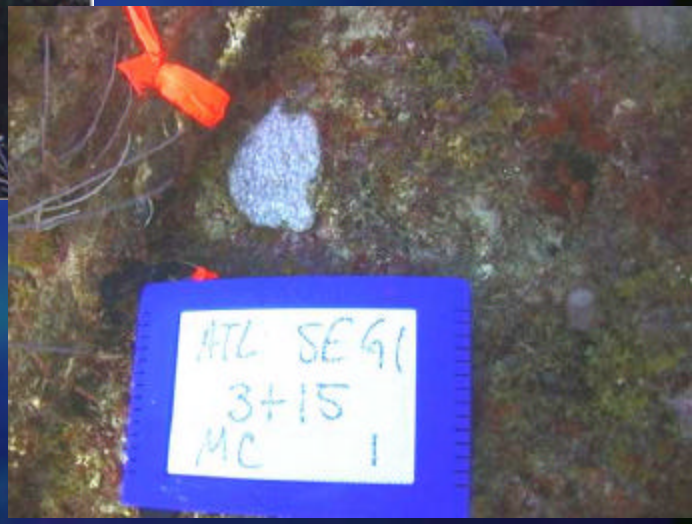
Post Lay Monitoring



6 months



1 year

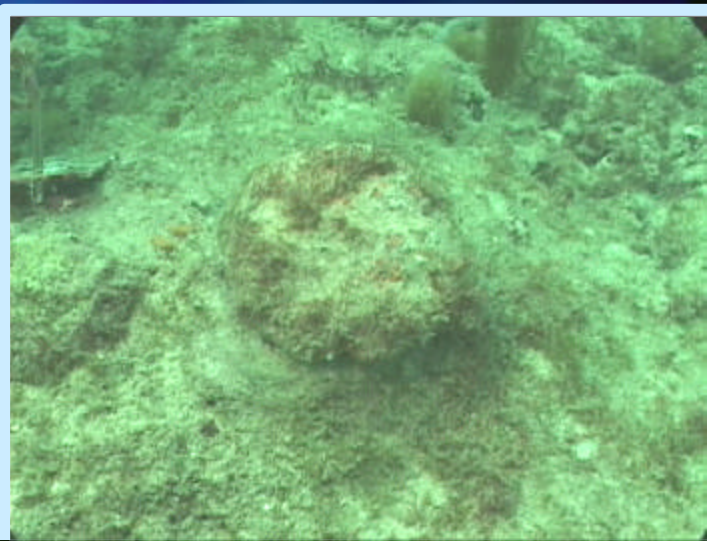


2 years

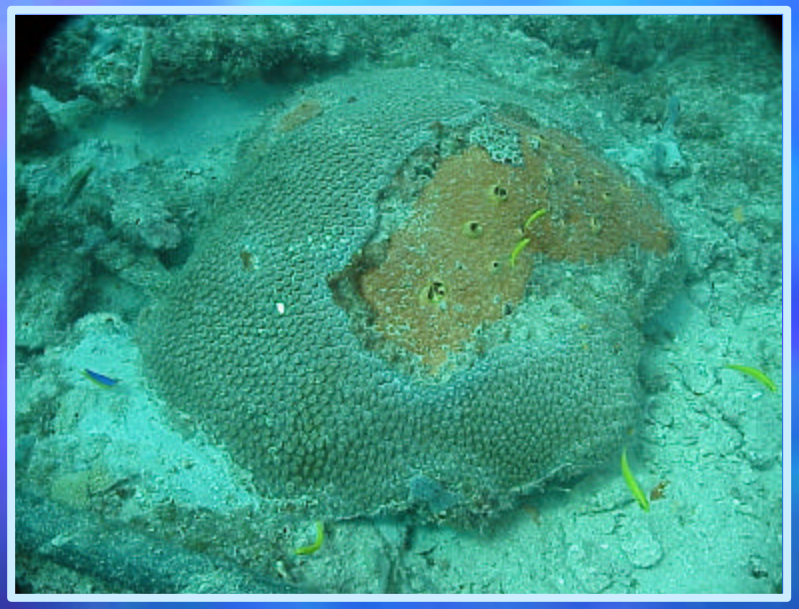
Reattached Corals

Year Two

Year Three



Restoration



Year Three

***Montastrea* colony invaded by *Cliona* at restoration sponge still present and colony further degraded at Year 3**

Montastrea cavernosa

Year Three

6 - months

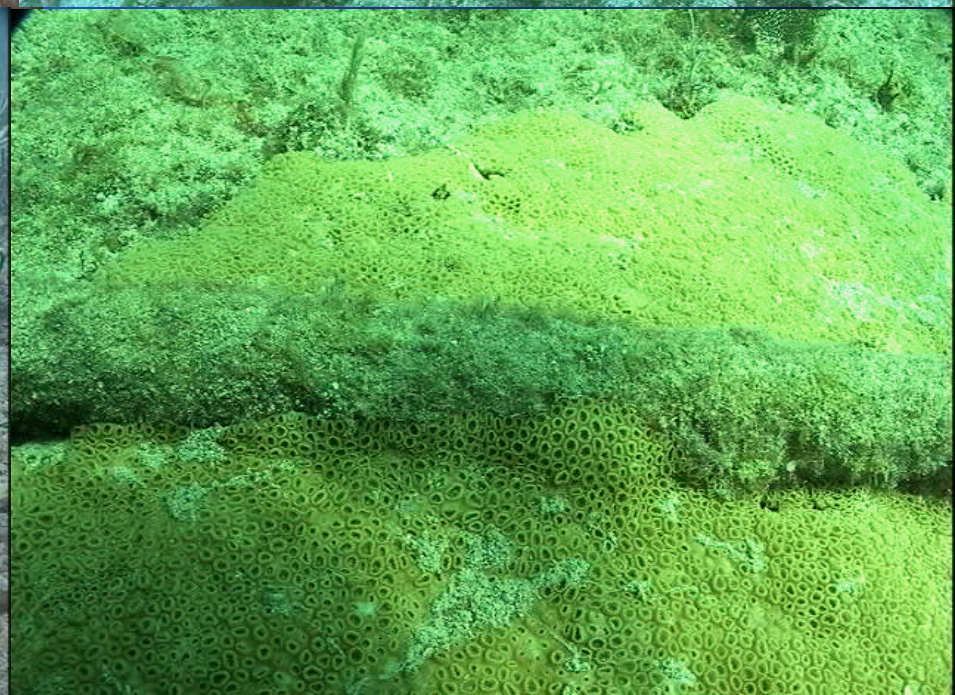

M
7+000
Restoration

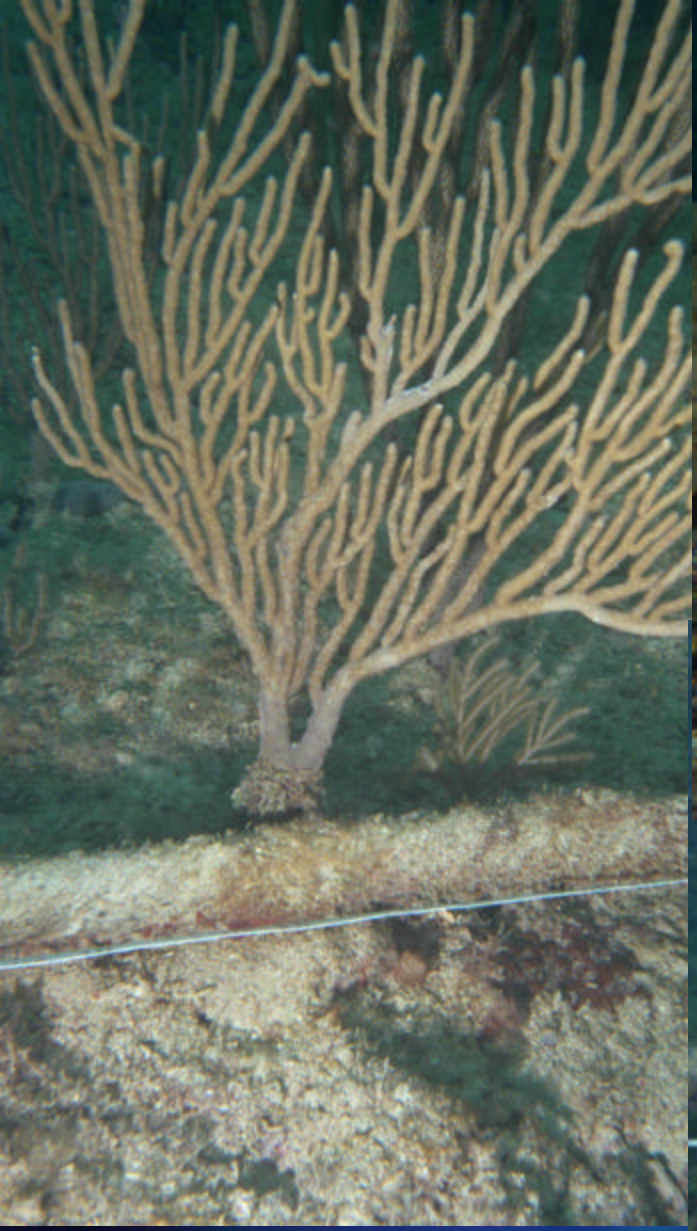

Year Three

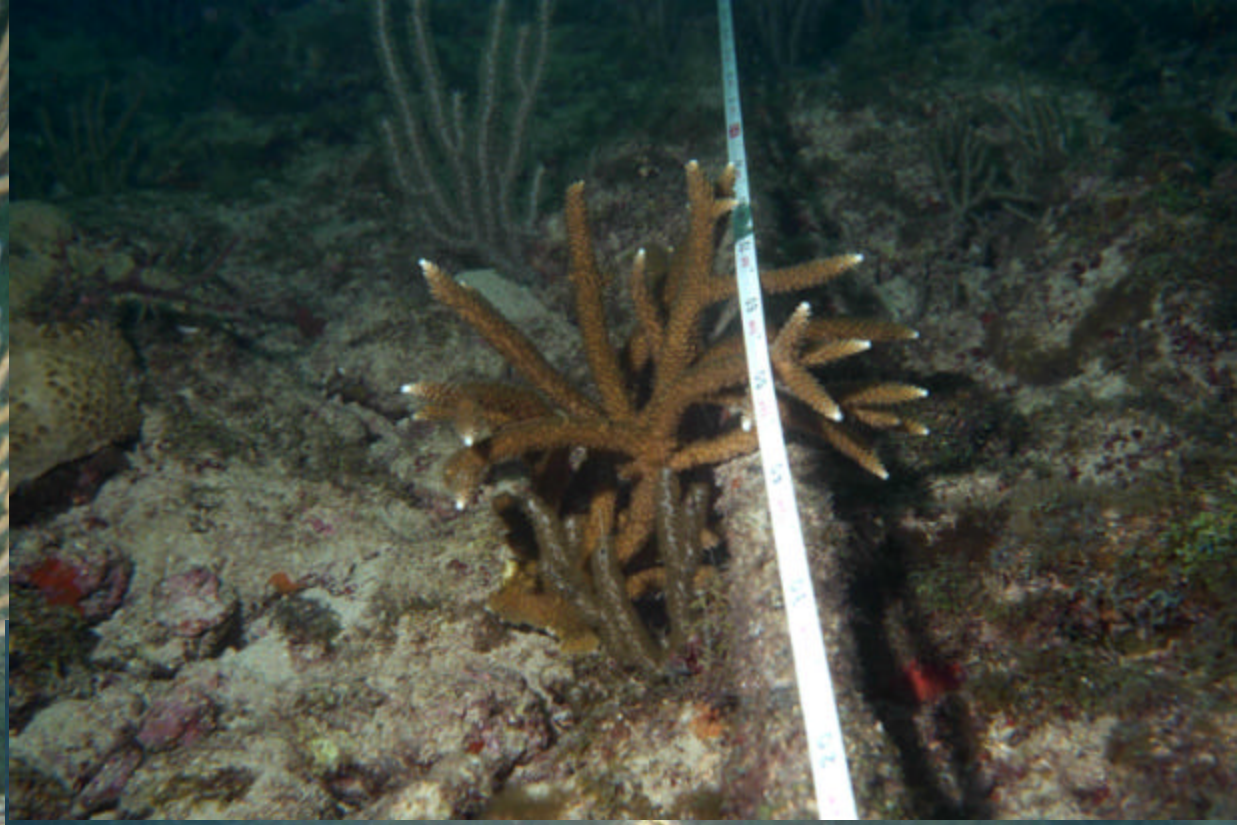

Restoration

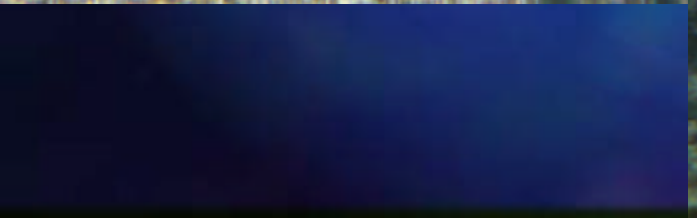

Year Three

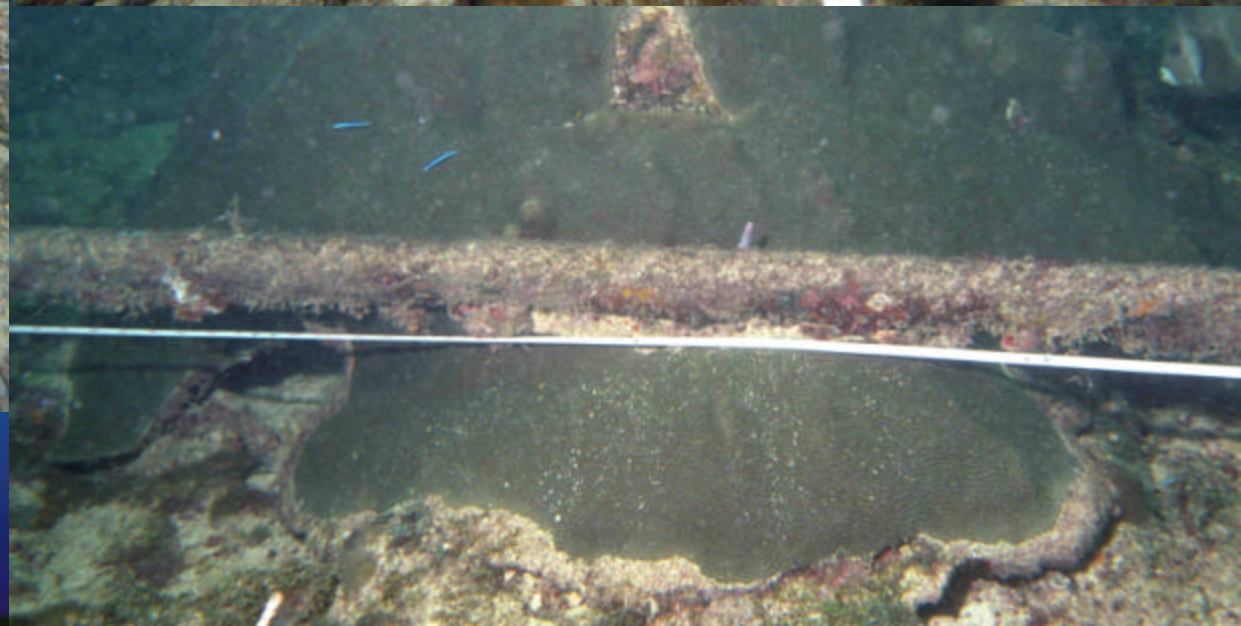
Does the cable move?

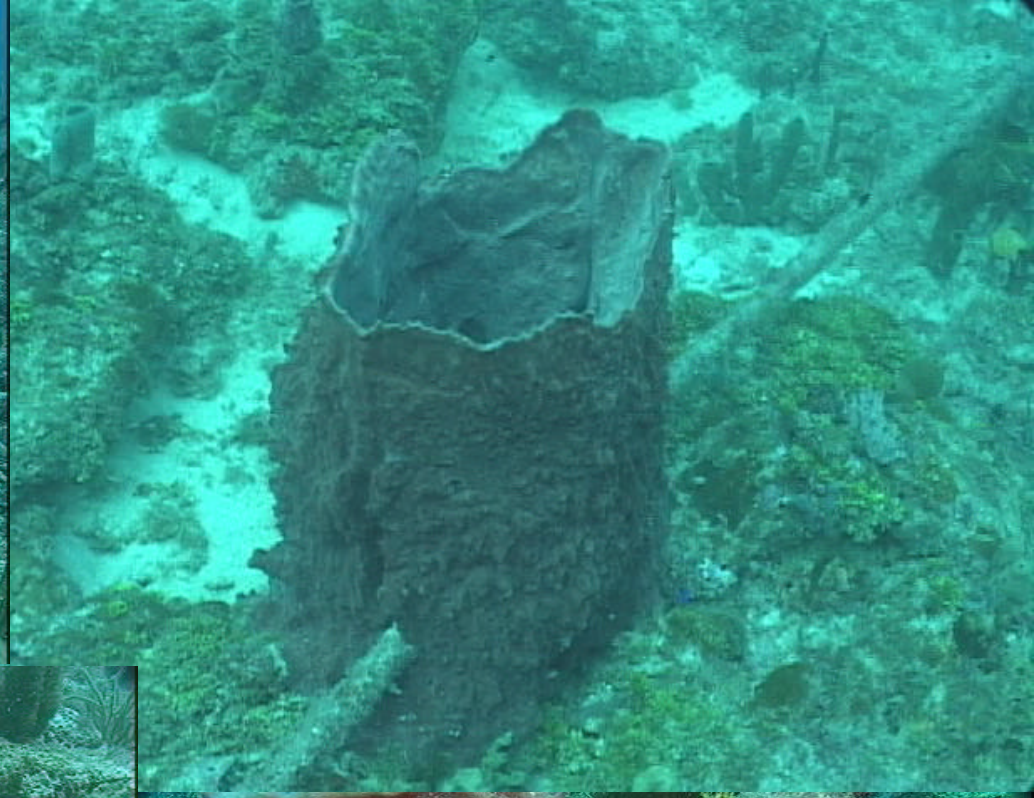




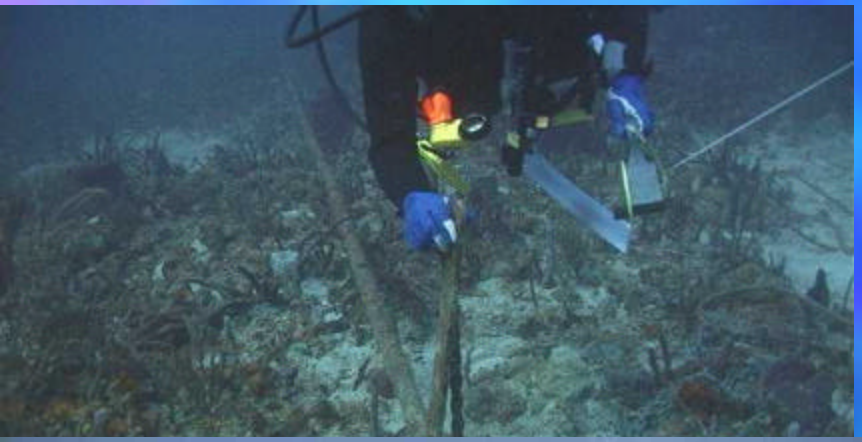


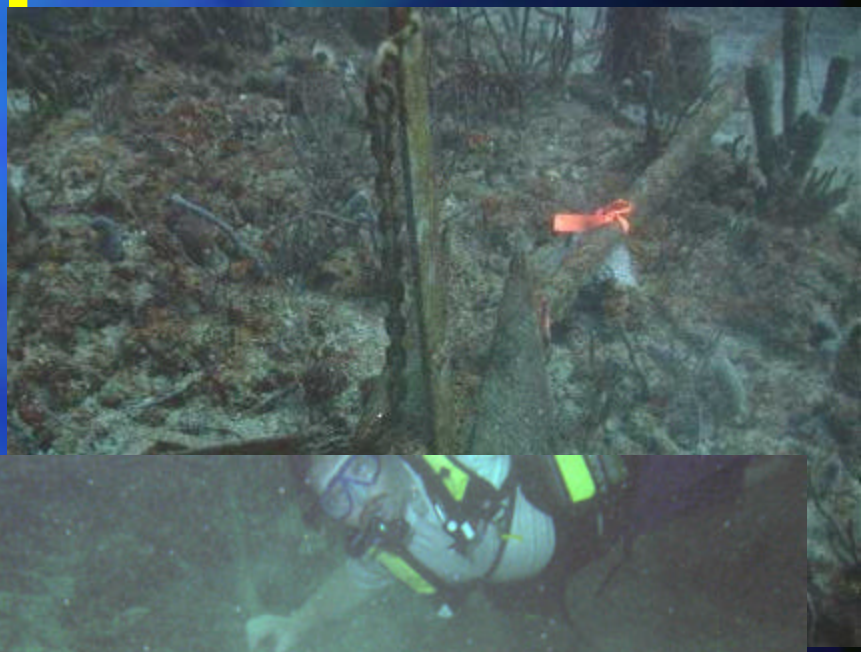


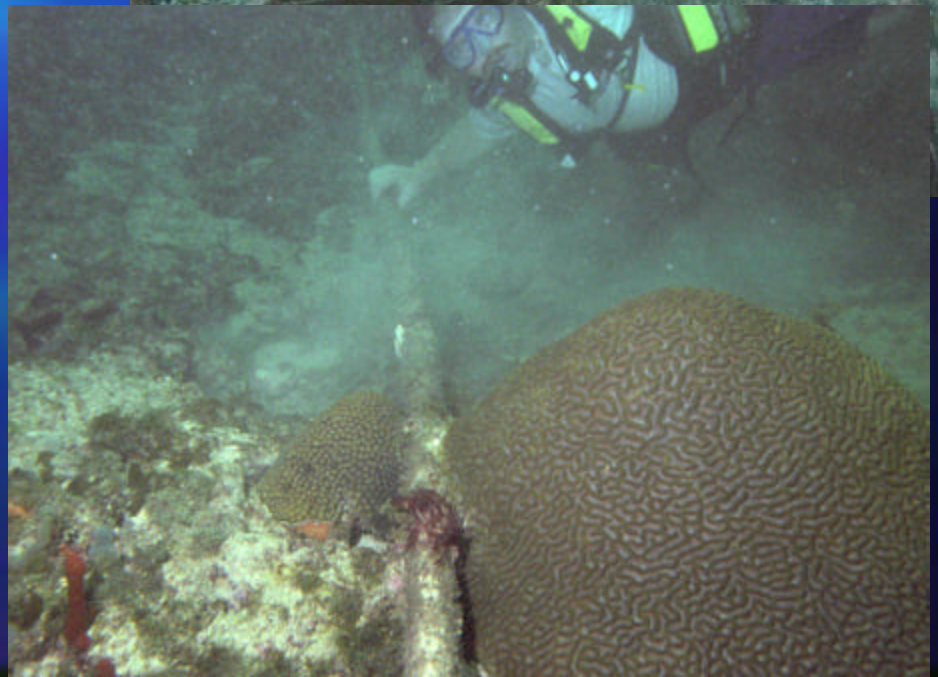


Post Lay Impacts





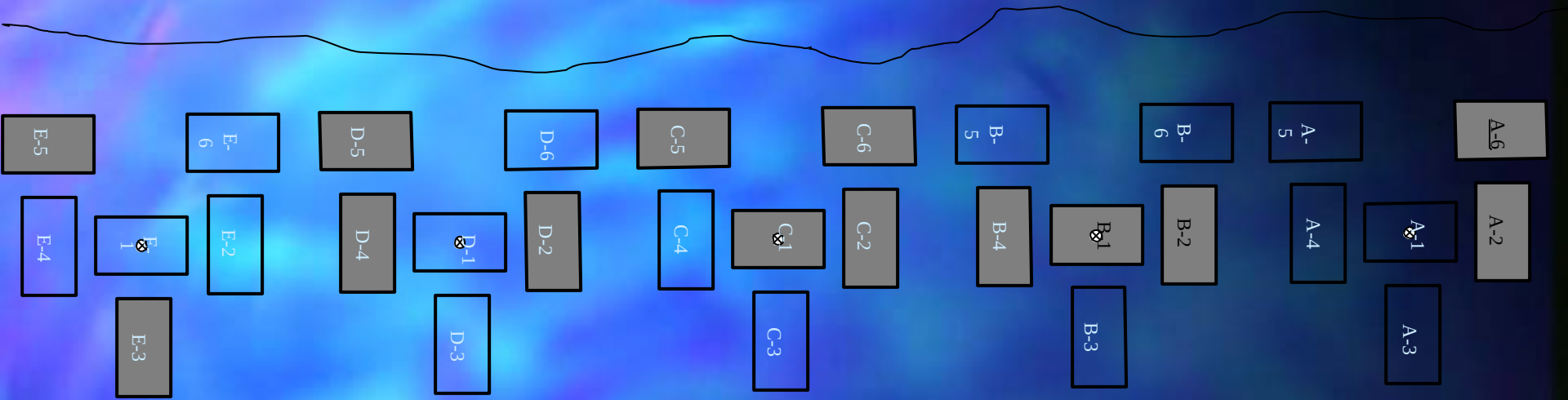


Summary-Potential Impacts

- HDD- frac-outs may smother corals and cause sedimentation.
- Cable Lay- hurried and careless installation may cause direct impacts.
- Post Lay- anchor fouling, cable movement, and cable repairs.

Mitigation- modules

Hard Bottom



LEGEND

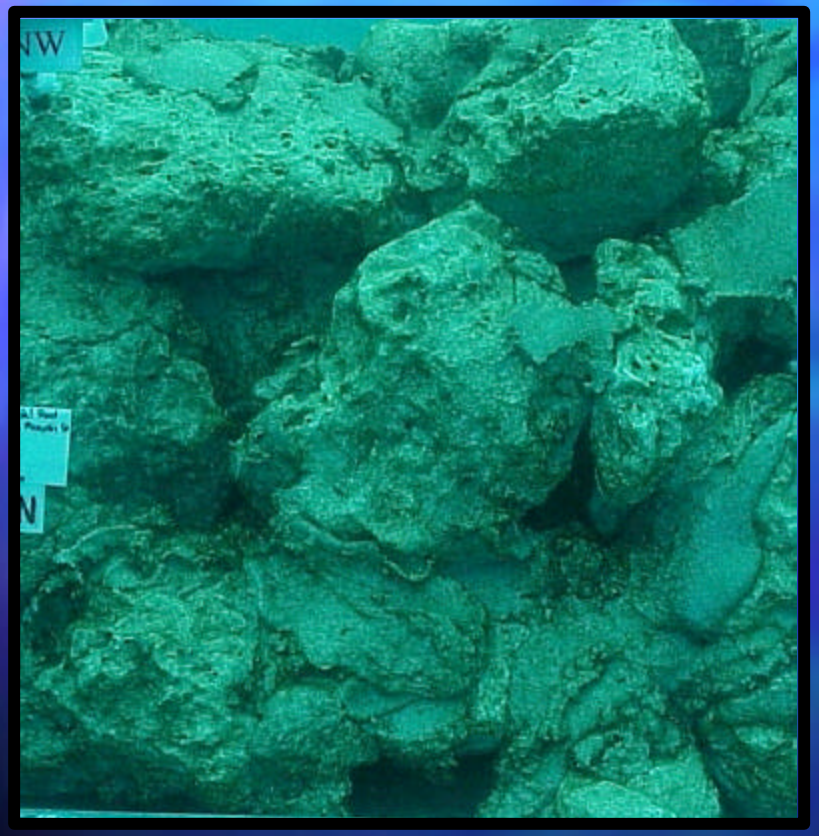
Numbering Sequence

Non - Monitored Module

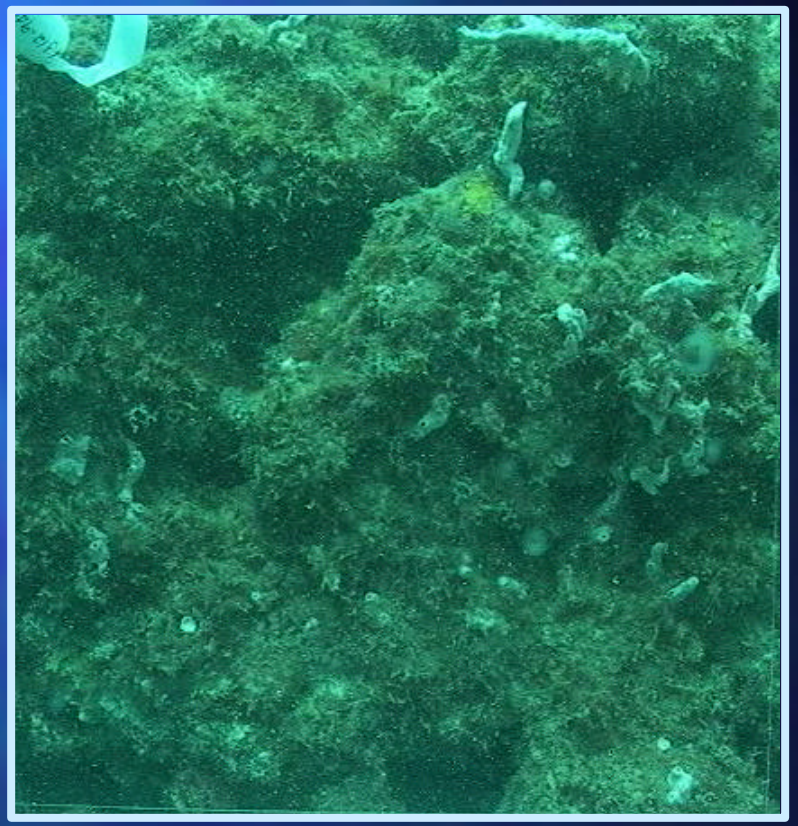
Monitored Module

Artificial Reef Modules

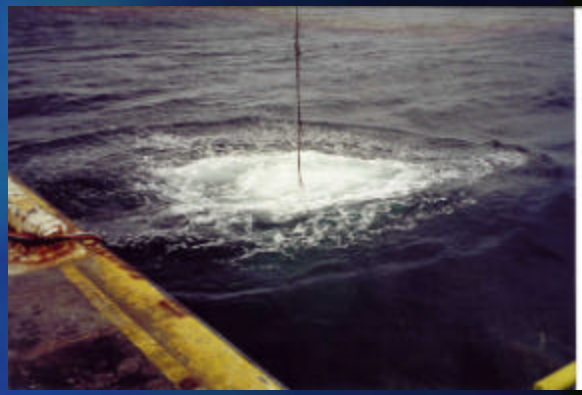
Deployment



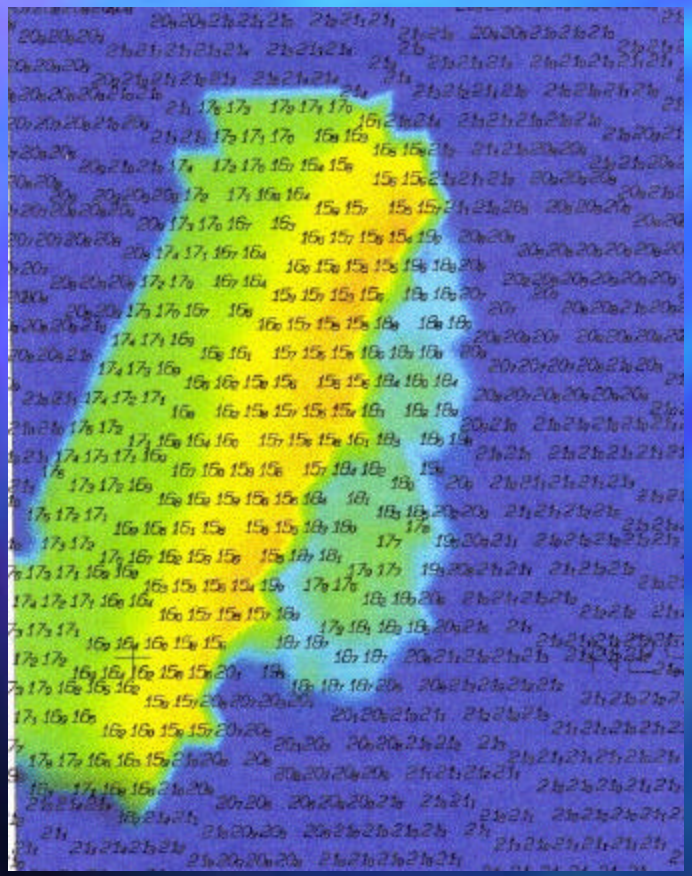
Year Three



Mitigation- limestone boulders



High Resolution Wreck Survey



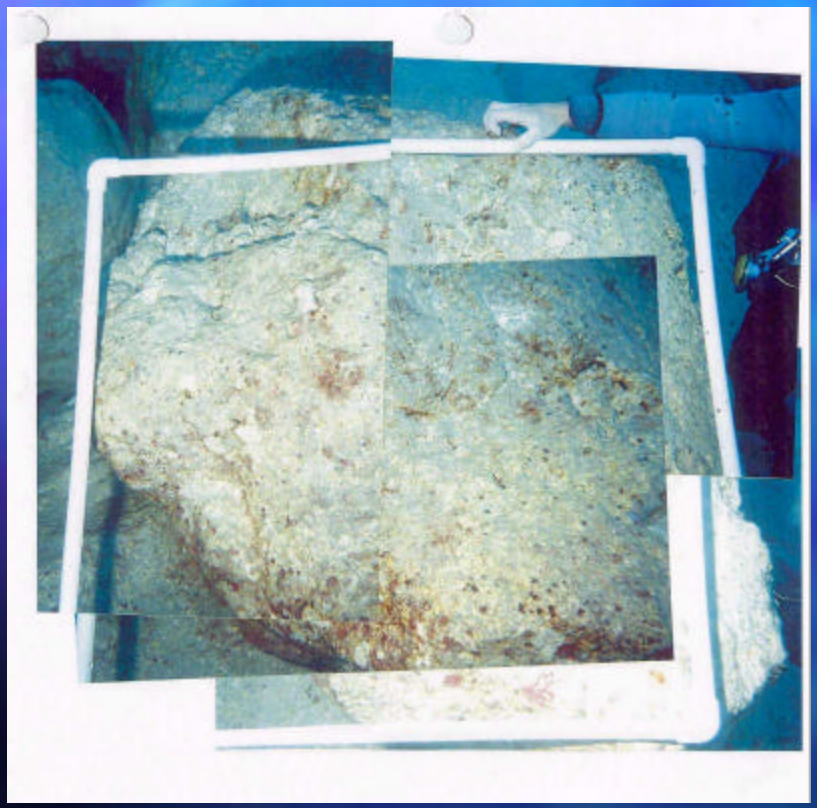
Sea Emperor Barge

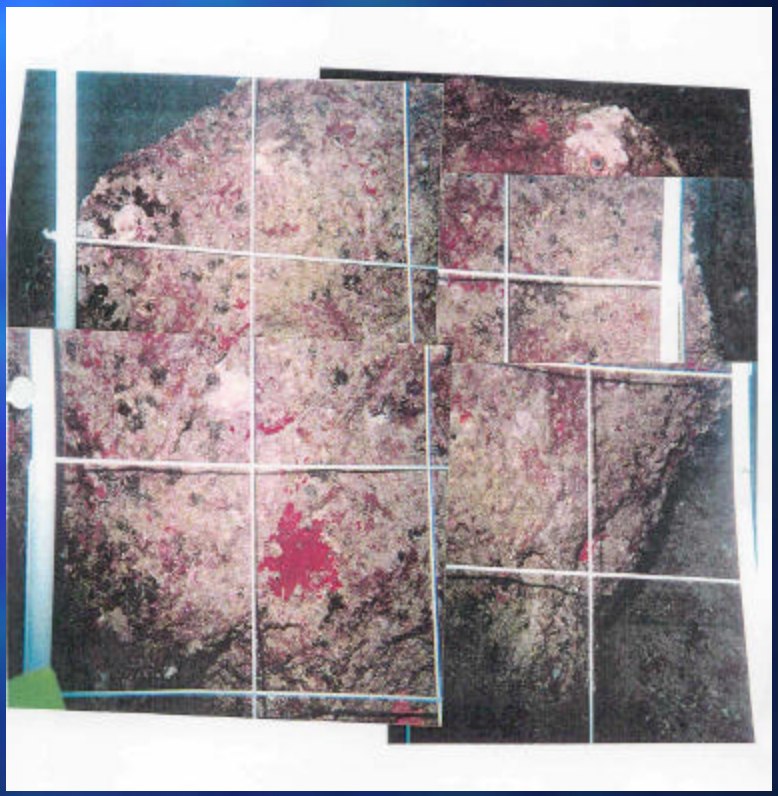
Sea Emperor

Artificial Reef

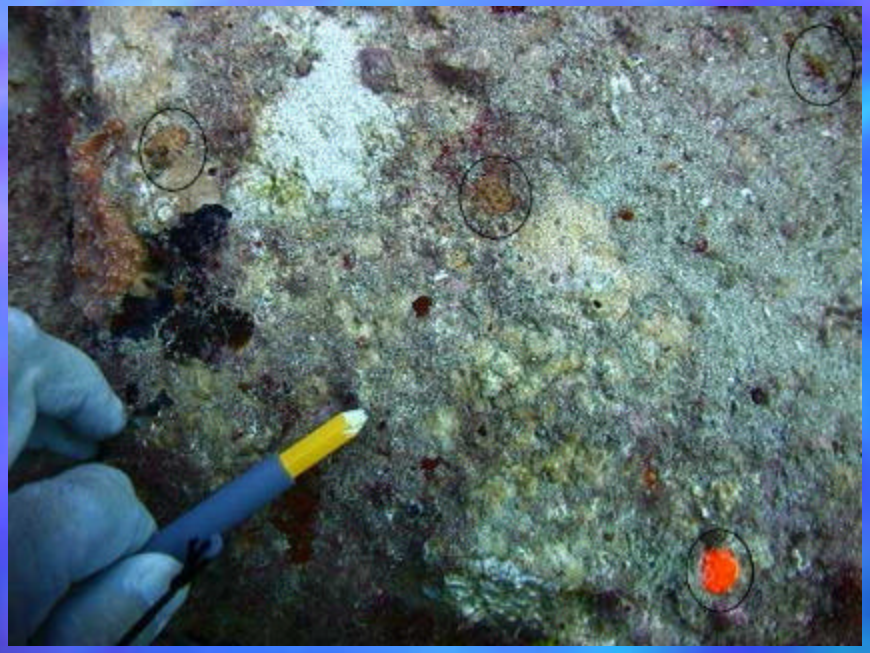
United Caribbean

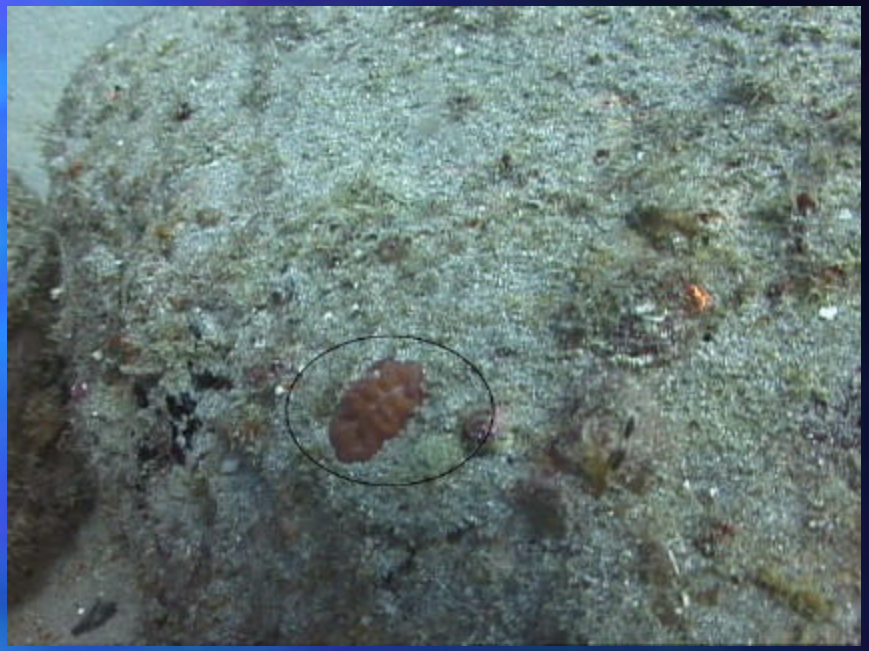
6 months and 1 year

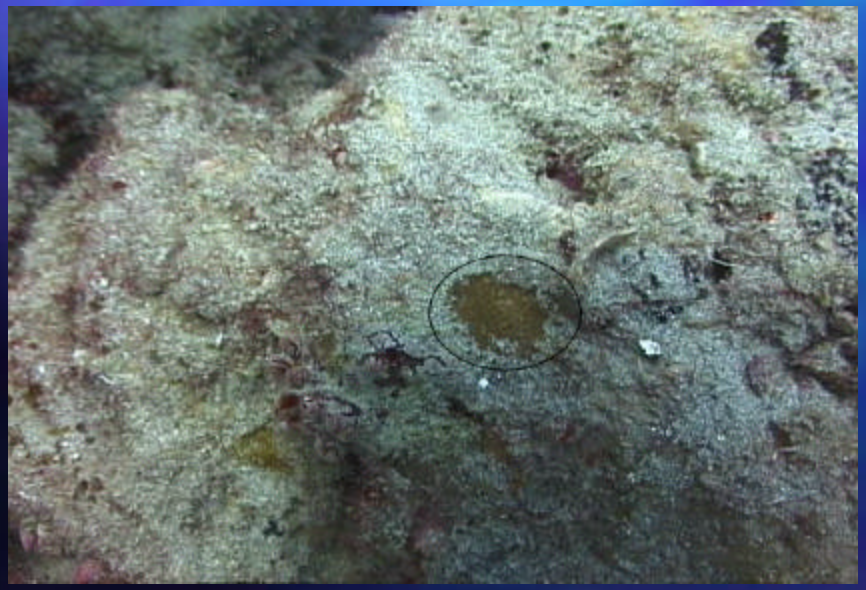


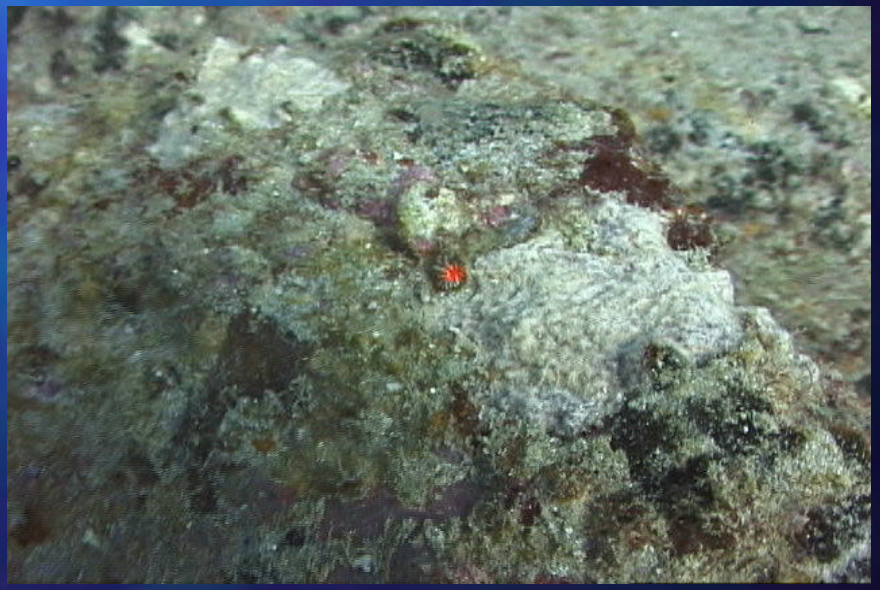


Artificial Reef Recruits









Recruitment Reports

- **HARD CORAL SPECIES LOST**

Montastraea cavernosa
50 %
Montastraea franksi
Montastraea annularis
Meandrina meandrites
Colpophyllia natans
Siderastrea siderea
Solenastrea bounoni
Porites astreoides
Acropora cervicornis
Madracis decactis
Diplora sp.

*not a complete list

- **HARD CORAL SPECIES RECRUITED**

Agaricia agricites
Dichocoenia stoksii
Diploria clivosa
Diploria labyrinthiformis
Phyllangia americana
Porites astreoides
Siderastrea siderea
Stephanocoenia intersepta

Recruitment Reports

Octocorals, Hydrocorals, Sponges, Algae

- **SPECIES LOST**

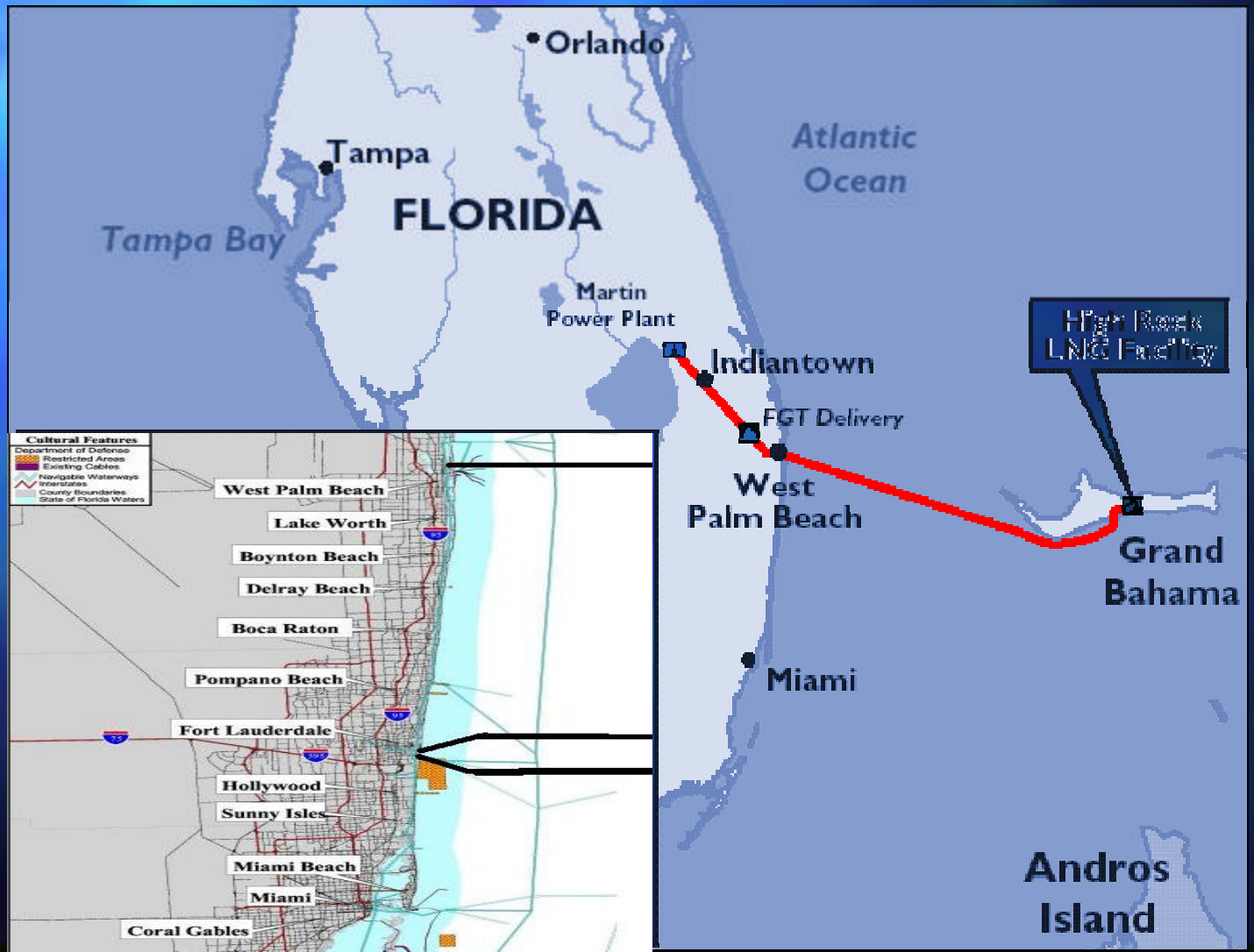
Briareum abestinum
Pterogorgia sp.
Eunicea sp.
Pseudoplexaura sp.
Murecea sp.
Psudopterogorgia sp
Gorgonia ventalina
Erythropodium caribaeorum
Xestospngia muta
Niphates sp.
Callyspongia vaginalis
Iotrochota birotulata
Holopsamma helwigi

- **SPECIES RECRUITED**

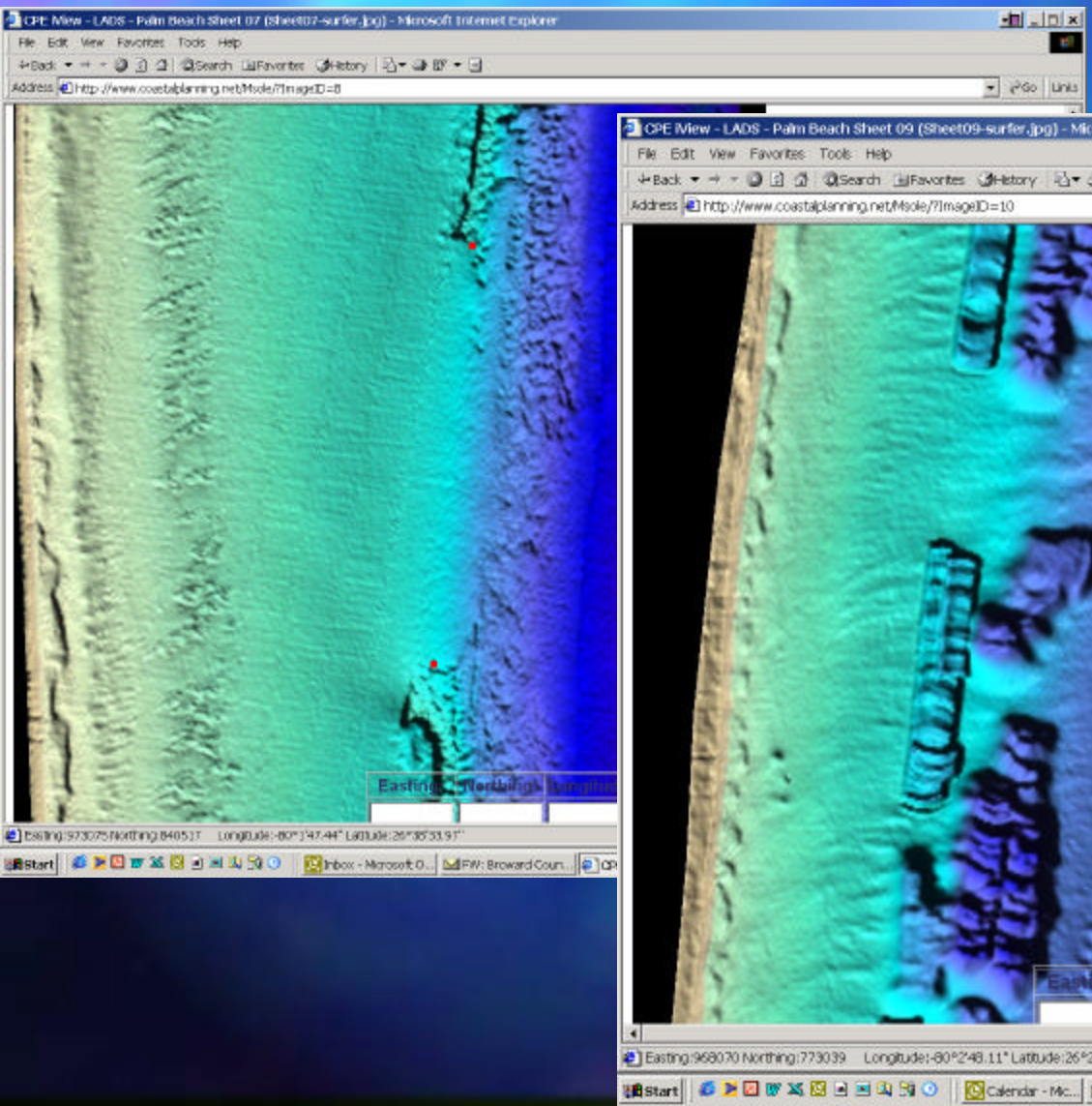
Briareum abestinum
Carijoa riisei
Pterogorgia sp.
Millepora alcicornis
Holopsamma helwigi
Cliona delatrix
Niphates sp.
Neogoniolithon spectabile
Dictyota bartayresii
Mat Algae

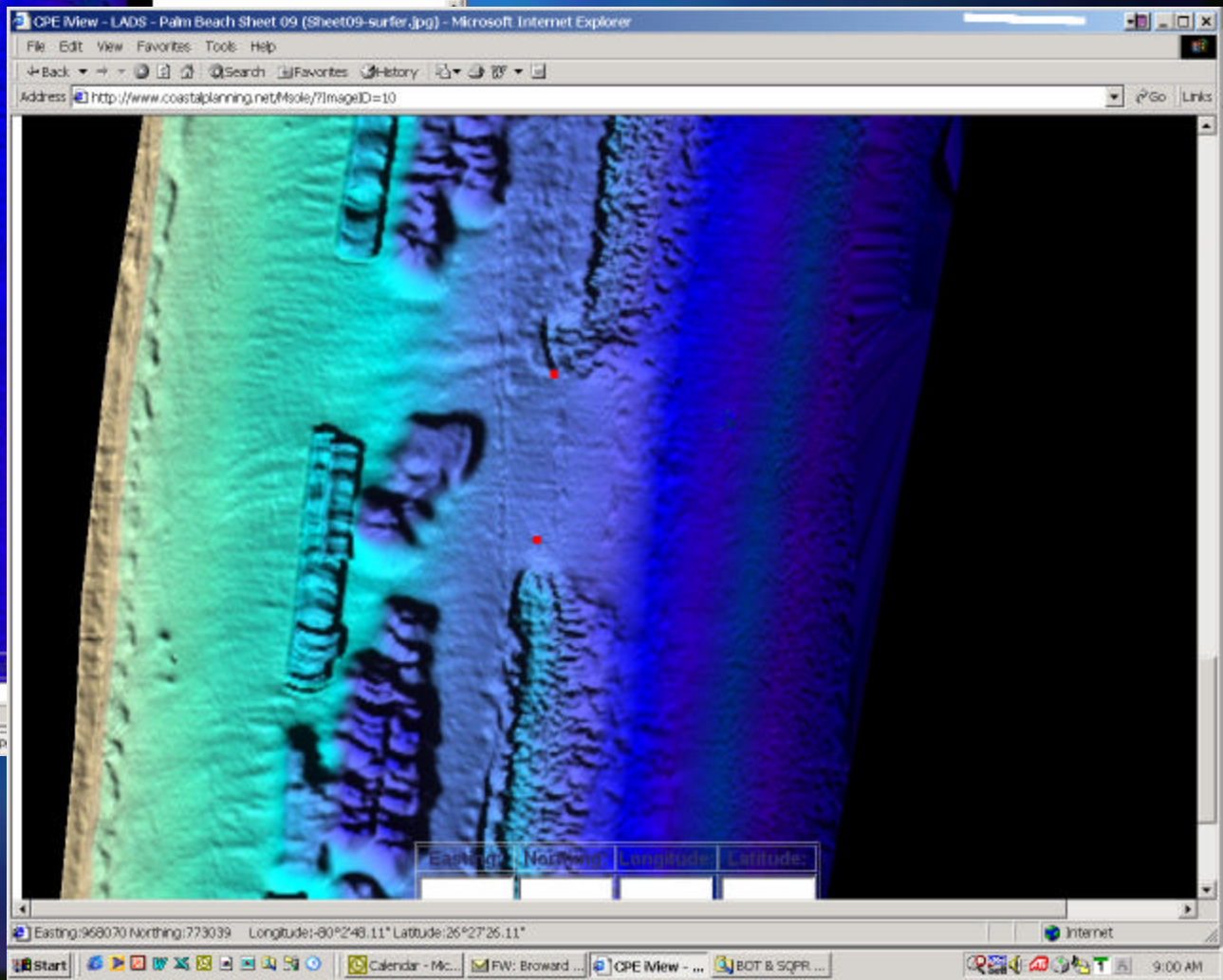
*not a complete list

Future Permitting Issues



New Tools for Impact Minimization





Acknowledgements

Vonē Research Inc.

PBS&J

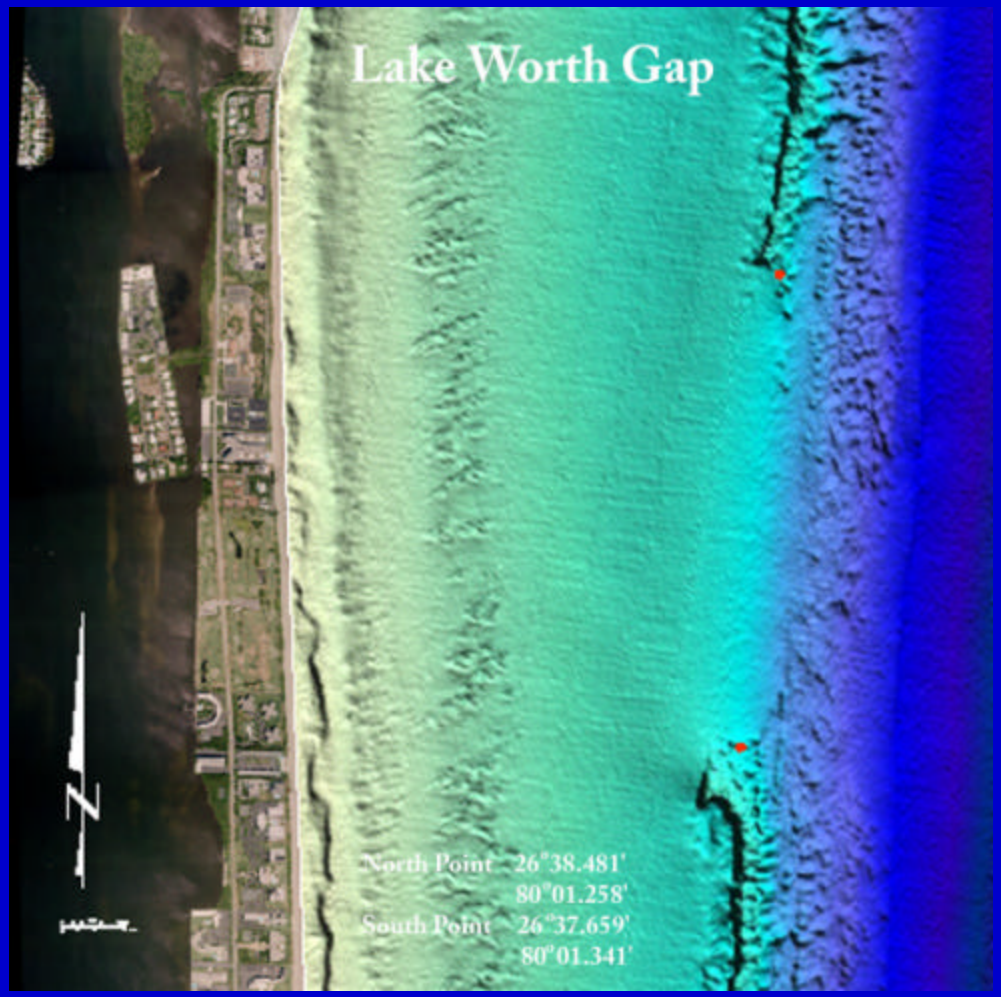
Public Employees for Environmental Responsibility

PEER

Protecting Employees Who Protect The Environment

COASTAL PLANNING & ENGINEERING, INC.

SPECIAL CONSIDERATION AREAS



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